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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/900,043	07/09/2001	Takahiro Yajima	35.C15541	3915

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EXAMINER

DANG, TRUNG Q

ART UNIT

PAPER NUMBER

2823

DATE MAILED: 06/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/900,043

Applicant(s)

YAJIMA ET AL.

Examiner

Trung Q. Dang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6-10 is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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1. The indicated allowability of claims 1-5 is withdrawn in view of the newly discovered reference(s) to Li et al (U.S. Pat. 5,942,049) and Otani et al. (EP 658918), all cited by applicants.

Rejections based on the newly cited reference(s) follow.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al. In view of Otani et al.

Li teaches a method for depositing an amorphous silicon film by plasma CVD in a RF glow-discharge system. The reactive gases disclosed are SiH₄, H₂ (see Table 7 and 8 for the flow rate of SiH₄ and hydrogen dilution ratio). The deposition pressure P and electrode spacing d are disclosed in Table 7. From Table 8, selecting a value for the flow rate of SiH₄ of 60 sccm (0.06 SLM) within the disclosed range. Accordingly, the flow rate M of H₂ is 600 sccm (0.6 SLM) when the hydrogen dilution ratio of 10:1 is selected according to Table 7. From Table 7, selecting a value of 2 torr (approximately 266 Pa) for pressure P and a value of 1 cm electrode spacing d. Substitute these values in the equation recited in the pending claim 1 yields:

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$$80 (0.6) + 200 \leq 266.1 \leq 160 (0.6) + 333$$

$$248 \leq 266 \leq 429$$

Thus, with respect to the relation as claimed, Li teaching satisfy the equation claimed in claim 1. Li differs from the claims in not disclosing that the substrate is employed as one electrode in the RF glow-discharge apparatus. However, Otani teaches a RF plasma - CVD reactors with internal electrodes wherein substrate S1 is mounted on electrode 2 and hence employed as one of electrode opposite to RF electrode 3 (see Fig. 1). Thus, it would have been obvious to one of ordinary skill in the art to mount the substrate in Li's process on one of the electrode in the RF plasma-CVD reactor as suggested by Otani because such practice is conventional in the art, and the application of a known technique to make the same would have been within the level of an artisan. As for claim 2, substituting the values of P, d, and L (total flow rates of SiH₄ and H₂ = 0.6 SLM + 0.06 SLM = 0.66 SLM) to the equation yields:

$$67 (0.66) + 200 \leq 266 \leq 147 (0.66) + 333$$

$$244 \leq 266 \leq 430$$

Thus, claim 2 is met by Li.

3. The following is an examiner's statement of reasons for allowance:

Claims 6-10 are allowable over prior art of record because none of prior art teaches or suggests the relation as claimed, which involves volume V of the discharge space.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trung Dang whose telephone number is (703) 308-2548. The examiner can normally be reached on weekdays from 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri, can be reached on (703) 306-2794. The fax phone number for this Group is (703) 305-3432 or (703) 308-7725.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.



Trung Dang

Primary Examiner, Group 2800